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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/735,912	12/16/2003	Seung-Chul Choi	040021-0306769	3859
909	7590	03/22/2006	EXAMINER	
PILLSBURY WINTHROP SHAW PITTMAN, LLP P.O. BOX 10500 MCLEAN, VA 22102			LUND, JEFFRIE ROBERT	
			ART UNIT	PAPER NUMBER

1763

DATE MAILED: 03/22/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

10/735,912

Applicant(s)

CHOI, SEUNG-CHUL

Examiner

Jeffrie R. Lund

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 04 January 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-13 is/are pending in the application.
- 4a) Of the above claim(s) 9-13 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-9 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 16 December 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date <u>12/03</u> . | 6) <input type="checkbox"/> Other: _____  |

**DETAILED ACTION**

***Election/Restrictions***

1. Applicant's election without traverse of Group I, claims 1-8, in the reply filed on January 4, 2006 is acknowledged.

***Claim Rejections - 35 USC § 112***

2. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

3. Claims 3 and 8 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 3 recites the limitation "the process gas line" in 7. There is insufficient antecedent basis for this limitation in the claim.

***Claim Rejections - 35 USC § 102***

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

5. Claims 1 and 2 are rejected under 35 U.S.C. 102(e) as being anticipated by Toshima et al, US Patent 6,709,523 B1.

Toshima et al teaches a deposition apparatus that includes: a process chamber

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7; a gas supply assembly 14 in a first end of the process chamber; a chuck 10 configured to support a wafer; a vacuum pump connected to exhaust port 17 located in a second end of the processing chamber, opposite the gas supply assembly; a position control assembly 12 for raising and lowering the chuck; and a controller 34 to control the position control assembly such that the distance between the wafer and the gas assembly is varied during the deposition process. (Entire document)

6. Claim 1 is rejected under 35 U.S.C. 102(e) as being anticipated by Ingle et al, US Patent 6,905,940 B2.

Ingle et al teaches a CVD apparatus that includes: a process chamber 15; a gas supply assembly 20; a chuck 25 configured to support a wafer; a vacuum pump 88; a position control assembly for raising and lowering the chuck; and a controller 53 to control the position control assembly 160 such that the distance between the wafer and the gas assembly is varied during the deposition process. (Entire document, specifically figure 1A, 1D, 5; and column 12 lines 48-64)

7. Claims 4-7 are rejected under 35 U.S.C. 102(e) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Ingle et al, US Patent 6,905,940 B2.

Ingle was discussed above. The specific operation of the position control assembly is an intended use of the apparatus. The position control assembly is capable of increasing the distance between the gas supply assembly and the chuck in any number of stages (positions) or in a continuous manner.

Alternately, it would be obvious to one of ordinary skill in the art to optimize the

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movement of the chuck to optimize the deposition rate or improve the conformal characteristics of the layer.

***Claim Rejections - 35 USC § 103***

8. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

9. Claims 2, 3, and 8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ingle et al, US Patent 6,905,940 B2, in view of Mitani et al, JP 3-281780.

Ingle et al was discussed above.

Ingle et al differs from the present invention in that Ingle does not teach that the vacuum pump is opposite the gas supply assembly; that the gas supply assembly is divided into a center and outer portions each connected to a process gas line; a valve in the process gas line attached to the outer portion; and controlling the valve.

Mitani et al teaches a processing apparatus that includes a gas supply assembly divided into a center section 21 and an outer section 22, 23, the center and outer sections connected to a process gas line with a valve 44, 54; and the vacuum pump 49, 410, 512, 513 is opposite the gas supply assembly. (Entire document, specifically, figures 4 and 5)

The motivation for dividing the gas supply assembly of Ingle et al and providing valves to control the gas flow into each section is to more accurately control the flow of gas into the processing chamber through out the deposition process, which results in a

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more uniform deposited layer as taught by Mitani et al.

The motivation for moving the vacuum of Ingle to opposite the gas supply assembly is to provide an alternate and equivalent gas flow as taught by Mitani et al.

Therefore it would have been obvious to one of ordinary skill in the art at the time the invention was made to divide the gas supply assembly, and to move the vacuum pump of Ingle et al as taught by Mitani et al.

### ***Conclusion***

10. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. The cited art teaches the technological background of the invention.


11. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jeffrie R. Lund whose telephone number is (571) 272-1437. The examiner can normally be reached on Monday-Thursday (6:30 am-6:00pm).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Parviz Hassanzadeh can be reached on (571) 272-1435. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should

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you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Jeffrie R. Lund  
Primary Examiner  
Art Unit 1763

JRL  
3/19/06